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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,127	02/10/2004	Christopher D. Unger	141908	2126

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EXAMINER	
HANNAHER, CONSTANTINE	
ART UNIT	**PAPER NUMBER**
2884	

DATE MAILED: 01/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/708,127	UNGER ET AL.	
	Examiner	Art Unit	
	Constantine Hannaher	2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *20040210*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 26 recites the limitation "said analyzed image" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 24 establishes the analyzed image, not claim 23.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 8-14, 21-24, 26, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agano (US 20020027201A1).

With respect to independent claim 1, Agano discloses a hybrid radiation detector **20** (Fig. **1**) comprising a first detector **21** that is adapted to receive radiation **L** and absorb a first portion thereof and allow a second portion thereof to pass through the first detector and a second detector **22** that is adapted to receive the second portion of the radiation **L** (paragraph [0034]). Although Agano avoids identifying the radiation **L**, it would have been obvious to one of ordinary skill in the art at the time the invention was made from the discussion of energy subtraction processing and the like that source **10** produces x rays.

With respect to dependent claim 8, the first detector **21** in the detector of Agano is disposed adjacent to the second detector **22** (Fig. **1**).

With respect to dependent claim 9, the construction of the detector **20** in Agano is illustrated schematically and the use of a substrate for rigidity and ruggedness and moisture protection and the like would have been obvious to one of ordinary skill in the art at the time the invention was made for the protection of the first detector **21**. A transmission in the claimed range of (80 to 100)% for the first portion of the radiation **L** would have been obvious in order to prevent increased noise in the detector output.

With respect to independent claim 10, Agano discloses a radiation imaging system (Fig. **1**) comprising a radiation source **10** that produces radiation **L**, an image detector assembly that is adapted to receive the radiation **L** and having a hybrid radiation detector **20** that includes a first detector **21** that is adapted to receive the radiation **L** and absorb a first portion thereof and allow a second portion thereof to pass through the first detector and a second detector **22** that is adapted to receive the second portion of the radiation **L** (paragraph [0034]). Although Agano avoids identifying

the radiation **L**, it would have been obvious to one of ordinary skill in the art at the time the invention was made from the discussion of energy subtraction processing and the like that source **10** produces x rays.

With respect to dependent claim 11, the system of Agano further comprises a processor **40** of the recited type (Fig. **1**, paragraph [0036]).

With respect to dependent claim 12, the processor **40** in the system of Agano analyzes the data to produce at least one image (paragraph [0036]).

With respect to dependent claim 13, the processor **40** in the system of Agano analyzes the image to produce at least one analyzed image in view of the subtraction processing (paragraphs [0010] and [0049]).

With respect to dependent claim 14, the system of Agano further comprises a display in communication with the processor (paragraph [0036]).

With respect to independent claim 21, Agano discloses a method operating the illustrated hybrid radiation detector (Fig. **1**) which would comprise the steps of receiving radiation **L** at a first detector **21**, absorbing a first portion of the radiation **L**, passing a second portion of the radiation **L** through the first detector **21**, and receiving the second portion of the radiation **L** at a second detector **22** (paragraph [0034]). Although Agano avoids identifying the radiation **L**, it would have been obvious to one of ordinary skill in the art at the time the invention was made from the discussion of energy subtraction processing and the like that source **10** produces x rays.

With respect to dependent claim 22, the method of Agano further comprises the step of producing an image (paragraph [0036]).

With respect to dependent claim 23, the method of Agano further comprises the step of analyzing the image in view of the subtraction processing (paragraphs [0010] and [0049]).

With respect to dependent claim 24, the method of Agano further comprises the step of producing an analyzed image (paragraph [0036]).

With respect to dependent claim 26, as best understood, the method of Agano further comprises the step of displaying the analyzed image (paragraph [0036]).

With respect to dependent claim 25, the method of Agano further comprises the step of displaying the image (paragraph [0036]).

6. Claims 2-4, 7, 15-17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agano (US 20020027201A1) as applied to claims 1 and 10 above, and further in view of Stettner *et al.* (US006057552A).

With respect to dependent claims 2 and 15 and 7 and 20, the detectors **21, 22** of Agano may be considered to be of the energy integrating type and reliance is placed on the composition of scintillator **21a** to separate the energies of radiation **L**. However, Stettner *et al.* teaches that an integrating detector may be made an energy discriminating detector through adjustment of the radiation flux and integration time (column 9, lines 32-40). In view of the energy selectivity required by Agano (paragraphs [0034] and [0039]), it would have been obvious to one of ordinary skill in the art at the time the invention was made to improve the reliability of the energy discrimination by assigning the role to one of the detectors **21, 22**.

With respect to dependent claims 3 and 16 and 4 and 17, the detectors **21, 22** of Agano are one of the recited species (paragraph [0052]).

7. Claims 5 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agano (US 20020027201A1) and Stettner *et al.* (US006057552A) as applied to claims 2 and 15 above, and further in view of Granfors *et al.* (US005751783A).

With respect to dependent claims 5 and 18, the construction of the detector **20** in Agano is illustrated schematically and accordingly the identical sizes illustrated in Fig. **1** cannot be relied upon. Granfors *et al.* teaches that in a hybrid x ray detector (Fig. **1**) comprising a first detector **26** and a second detector **23**, in which the first detector **26** is used for imaging and the second detector **23** is used for exposure monitoring, it is known for the second detector **23** to be smaller than the first detector **26** (Fig. **5** in view of column 3, lines 19-50). In view of the suggestion of Stettner *et al.* as described above in the rejections of claims 2 and 15 and the teachings of Granfors *et al.* for monitoring of x ray intensity in specific anatomical areas which reduces the effects of the varying thickness of object **6** in Agano, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the second detector **22** of Agano, when employed as an energy discriminating detector, to be smaller than the first detector **21**.

8. Claims 6 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agano (US 20020027201A1) and Stettner *et al.* (US006057552A) as applied to claims 2 and 15 above, and further in view of Meuleman (US003742215A).

With respect to dependent claims 6 and 19, the construction of the detector **20** in Agano is illustrated schematically and accordingly the even thickness illustrated in Fig. **1** cannot be relied upon. Meuleman teaches that in stacked detectors it is advantageous to reduce the thickness of a first detector in an area that is not larger than the second detector (Fig. **1**, column 2, lines 3-13). In view of the improved ability of radiation to reach the useful zone of the detector and the reduced disturbance in the trajectory (since Agano relies on a steady trajectory to assess the magnification) as suggested by Meuleman, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first detector **21** of Agano to be thinner in an area that is not larger than the area of the second detector **22**.

Response to Submission(s)

9. This application has been published as US2005/0173641A1 on August 11, 2005.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Constantine Hannaher whose telephone number is (571) 272-2437. The examiner can normally be reached on Monday-Friday with flexible hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov/. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ch

CONSTANTINE HANNAHER
Constantine Hannaher
Primary Examiner